

SERVICE BULLETIN NO 110/95 SWIFT**Ref:**

**Optional equipment for the glider:
hydraulic disc brake on the main wheel.**

Method of introduction:

According to users decision.

Prepared by:

**Dr. Christian Ortner, Innsbruck, in cooperation
with TOST Flugzeuggeratebau GmbH, Munchen.**

Author:

for Ortner
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Dr. Christian Ortner

ZAKŁAD REMONTÓW I PRODUKCJI
Sprzętu Lotniczego
Edward Margański
43-300 BIELSKO-BIAŁA
ul. Cieszyńska 381 - Tel./Fax 201 10

Approved by:

E. Margański
.....
Dipl.Ing. Edward Margański

1. REASONS FOR INTRODUCTION THIS BULLETIN

SWIFT glider in comparison with other one-seaters is heavy due to its special application and the approach and landing speeds are a little bit higher than usual. Therefore an efficient wheel brake system is important for safety and comfort.

Although the original mechanical brake system's efficiency is sufficient it needs frequent adjusting.

An aerobatic glider performs often a lot of flights and landings a day, mostly with various pilots, so this characteristics of operation felt to be negative.

By request of some owners the producer decided to offer an optional equipment in form of a hydraulic disc braked wheel which needs no adjustment. Additionally the operation force for braking is lower and more easy to dose.

Simultaneously the tire of 5.00 x 5 PR 6 size easy available all over the world markets is of less weight and is approved.

2. LIST OF GLIDER FACT. NOS. COVERED WITH THIS BULLETIN

P-05, P-06, P-08 and Fact. Nos 0101 thru 0122 included.

3. DESCRIPTION OF MODIFICATION

The original wheel including the brake operation cable will be replaced by the TOST type 115-25 wheel, Art. No 994.000, equipped with a brake disc of 166 mm dia. The original axle is retained.

The wheel is held in its position with a distance ring of a bore of 25 mm and 13 mm length at the righthand side and with a distance ring of 15 mm length inserted into the brake shoe holder and a brake moment support.

These are the special parts available in glider producer's factory or made acc. to the drawings supplied by a licensed manufacturer (for example TOST factory) of steel of 20 or 1.7734.4 quality. No modifications on the undercarriage are necessary.

The Cleveland 30-9 brake shoe is installed on the brake shoe holder.

The brake is actuated by "TOST Form 3" hydraulic brake cylinder using the special push-rod operation available in producer's factory or manufactured by a licenced producer of 30 HMA construction steel or a steel of comparable characteristics acc. to the drawings (tube should be a seamless one).

The brake cylinder support shall be mounted on the suspending tube of elevator control lefthand side in the fuselage, behind the cockpit between the wheel housing and fuselage wall.

A special supporting part is available. It can be installed either by means of screws, or, if a licensed welder is available and the temperature of no more than 80° on the connection area of this rod to the composite (exposy-glass) structure is assured the welding connection to fix this element is preferable.

The push-rod system unit is supported on the same connection point with the cable operated control lever of the air brake system in the lefthand front side of wheel housing. The push-rod is connected with the lever on the brake cylinder. The original brake cylinder lever shall be shortened by one or two holes, depending on pilot's preference, (one hole shortened: - low operating force, smooth but early started braking; two holes shortened: - increased operating force, but better perceptable "start" of brake action).

The hydraulic connection is obtained by means of a cooper tube of 6 mm dia. and ca. 300 mm length, (coupled by TOST 058680 fitting part to the brake cylinder) passing through the lefthand side of the wheel housing top inside. Then TOST 058620 fitting part connect the cooper tube to the flexible hydraulic tube TOST 058762 part of 500 mm length. Use the DOT 4 hydraulic fluid.

The point in which the braking action starts can be adjusted by two counter nuts on the push-rod between air brake lever and hydraulic cylinder. The covering plate above the wheel housing shall be cut out to make space for installing the brake cylinder (see drawing). It is recommended to close this opening with two layers of glass fabric (280g/m² saturated with epoxy resin.

4. LIST OF ENCLOSURES

- * Drawings of: wheel (front and side view), brake cylinder installation, push-rod operation.
- * Part's list
- * Assembling instruction

5. FINAL STATEMENTS

The modification of wheel brake system can be performed by the user himself / herself on his / her own decision using the parts suggested in the Part's List and following the assembling instruction. If the brake cylinder support would be welded on, a licensed welder can perform this work and temperature of less than 80°C shall be assured, in the vicinity of epoxy composite parts (no colour changes of the epoxy composite is allowed).

- THE END -

I N S T R U C T I O N

FOR ASSEMBLING THE WHEEL WITH HYDRAULIC BRAKE

Designations and descriptions in this Instruction refer to drawing
No A/2-1.10.000

1. Disassemble the actual set of wheel with brake and control cable.
2. Install the new wheel with braking jaws item 5 locked in yoke item 4 and distance sleeve item 6 on the existing axle.
3. Install the connector item 10, slider item 11 with nuts item 17 on the lever A/2-1.01.600. Put on the slider the guide item 12.
4. Screw up the pump item 8 to the bracket item 9.
5. According to the position of details assembled acc. to item 3 lock the bracket with the pump on the tube A/2-1.01.650 on the glider and mark the position of two holes ϕ 5.
6. Drill through the tube in marked places with ϕ 5 drill, remove the chips and burrs.
7. Screw up the bracket with pump using two screws M5 x 36 and self locking nuts.
8. Connect the pump with jaws, hose and cooper pipe by means of TOST 058668 connector and TOST 058620 joint through the opening drilled in the undercarriage housing.
The slot between the drilled opening and pipe should be filled with cut glass fabric saturated with epoxy resin.
9. Fill the system with hydraulic liquid DOT-4 and remove the air.
10. The adjustment of pump stroke is obtained by means of nuts item 7 on the slider item 11.
11. Replace and fit the lefthand undercarriage cover.
12. Check all procedures performed and prepare the glider for flight test.

L I S T O F P A R T S

1. Tyre with tube	TOST 994000
2. Brake hub	TOST 055192
3. Brake disc	TOST 057000
4. Yoke of jaws	A/2-1.10.001
5. Brake jaws	TOST 075820
6. Distance sleeve	A/2-1.10.001
7. Hose L=500 mm	TOST 058762
8. Pump	TOST 058230
9. Pump bracket	A/2-1.10.002
10. Connector	A/2-1.10.003
11. Slider	A/2-1.10.003
12. Guide	A/2-1.10.004
13. Connector	TOST 058663
14. Cooper pipe	ϕ 6 x 300 mm
15. Fitting part	TOST 058620
16. Castellated nut M6	1 piece
17. Nut M6	5 pieces
18. Screw M6 x 22	1 piece
19. Washer ϕ 6,4	3 pieces
20. Split pin ϕ 1,4 x 12	1 piece
21. Screw M5 x 36	2 pieces
22. Self-locking nut M5	2 pieces
23. Washer ϕ 5,3	2 pieces
24. Screw M6 x 46	2 pieces
25. Self locking nut M5	2 pieces